

THEORETICAL FOUNDATIONS OF ELECTRICAL ENGINEERING

ANNOTATION TO THE CURRICULUM OF THE INSTITUTION OF HIGHER EDUCATION

Specialty: 1-54 01 02 "Methods and devices for quality control and diagnostics of the state of objects"

	Form of higher education full-time (daily)
Well	2
Semester	3
Lectures, hours	34
Practical (seminar) classes, hours	16
Laboratory classes, hours	16
Exam, semester	3
Classroom hours per academic discipline	66
Independent work, hours	42
Total hours per academic discipline/credit units	108/3

1. Brief content of the discipline. The discipline "Theoretical foundations of electrical engineering" includes two blocks: the theory of electrical circuits and the theory of the electromagnetic field.

2. The task of the discipline is the study of one of the forms of matter - the electromagnetic field and its manifestations in various technical devices, the study of modern methods for modeling electromagnetic processes, methods for analyzing and calculating electrical circuits and electromagnetic fields.

3. Learning outcomes. As a result of mastering the academic discipline, the student must:

– know: the minimum basic set of ideal circuit elements; methods for compiling topological equations of electrical circuits in a general form; methods for representing signals in the time and frequency domains; methods for calculating electrical circuits; basic laws of linear and non-linear electrical and magnetic circuits; laws and theorems of the electromagnetic field;

– be able to: set and solve problems of analysis and synthesis of electrical and magnetic circuits of varying complexity; form models of signals and circuit elements with a certain degree of idealization of physical phenomena in real electrical devices, select and configure equipment, measuring instruments and other devices to perform experimental research in electrical circuits, observe safety rules when working with electrical installations, competently conduct experimental research and correctly evaluate and results; to use modern means of computer technology in the performance of settlement and graphic work;

– own: methods of analysis of electrical circuits and electromagnetic fields; methods for determining the main parameters of electrical circuits.

4. Formed competencies: BOD-8 "To be able to solve problems of analysis and synthesis of electrical circuits."

Requirements and forms of the current attestation: exam (oral and written form). In order to be admitted to the exam, the student, in accordance with the curriculum, must complete and defend laboratory work, as well as individual tasks.